

**An improved fire detection system.**

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**Abstract**

A monitoring system for detecting fire or other elevated temperature conditions in a plurality of discrete zones Z1, Z2, Z3, etc. comprises a loop box 1 which has two pairs of terminals A and B to each of which is connected one end of a pair of conductors of a linear temperature detector cable passing through each of the discrete zones. Adjacent zones are sectionalised by zone boxes 9, each of which comprises a pair of balanced resistors, one resistor connected in series in one conductor of the loop and the other resistor being connected in series in the other conductor. The loop box 1 has a constant current generator 2 which can be connected via an electronic switch 3 to either the A or B end of the loop 4; an electronic switch 5 which connects one of two fixed resistors 6 directly across the two conductors of the loop at the opposite end to that to which the generator 2 is connected; and an electronic switch 7 which connects a voltage measuring circuit 8 onto the terminals of the loop to which the generator 2 is connected. Electronic switches 3, 5 and 7 are operated by control circuits 10 whose output signals are fed to a display device 11, which shows if the system is operating normally, identifies the nature of any abnormalities and indicates any discrete zone in which there is a short circuit caused by a fire, and to external alarms.

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